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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,087

07/31/2006

Chul-Hee Lee

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EXAMINER

YOUSSEF, ADEL Y

ART UNIT

PAPER NUMBER

2618

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,087	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> ADEL YOUSSEF	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/31/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/28/2008 has been entered.

#### ***Response to Arguments***

Applicant's arguments have been fully considered by indicating that the argument is moot in view of new ground of rejection.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7, 10, 12-16, 18, 20, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tian et al. (PGPUB-No: 2002/0076084) in view of Okamoto et al. (PGPUB-No: 2006/0276983).

#### **Examiner Notes**

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3. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

**Regarding claim 1**, Tian et al. teach a method of measuring transmission quality of multimedia data, comprising the steps of: (a) a transmitter transmitting multimedia data through a channel by a transmitter (paragraph 66); and (b) the receiver receiving the multimedia data from the transmitter and transmitting to the transmitter (paragraph 66, that the receiver and transmitter to even out the statistical fluctuations in bandwidth) through a return channel, information on errors (paragraph 59, that the ratio of signal strength provides a measure of the quality of service) occurring during the multimedia data transmission (paragraphs 60, 61) Tian don't teach a receiver in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission (c) estimating at the transmitter the multimedia data played at the receiver using the error information received from the receiver (d) Measuring the transmission quality of the multimedia data received by the receiver by comparing the estimated received data with reference data .

However Okamoto teach a receiver in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission (paragraph 18, that estimate a

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subjective quality of the deteriorated video signal quality) (c) estimating at the transmitter the multimedia data played at the receiver using the error information received from the receiver (paragraph 143, that estimation accuracy for the video quality assessing apparatus is equal to or below this value when the estimation accuracy is calculated as a mean square error) (d) Measuring the transmission quality of the multimedia data received by the receiver by comparing the estimated received data with reference data (paragraph 24, that retrieving correction information corresponding to the calculated video signal feature values of the reference video signal; and correcting the estimated subjective quality according to the retrieved correction information).

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian& Okamoto to include estimate the multimedia data as taught by Okamoto in order to controlling the transmission rate of multimedia data according to the estimated effective transmission rate thereby the multimedia quality (paragraph 16).

**Regarding claim 2**, Tian et al. further teach the method according to claim 1, wherein the step (b) is performed in such a way as to transmit the error information to the transmitter through the return channel only when a transmission error of the multimedia data is detected (paragraph 50, that measure of symbol errors in the raw message estimates of the watermark message payload).

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**Regarding claim 3**, Tian et al. further teach the method according to claim 1, wherein the step (b) comprises the step of compensating errors by applying an error concealment technique ( video error) to the received multimedia data (paragraphs 57,the measurement of watermark signal strength at a receiver provides an indicator of video).

**Regarding claim 4**, Tian et al. further teach the method according to claim 3, wherein the step (b) is performed in such a way as to transmit information on the employed error concealment technique (error video) and error information to the transmitter through the return channel (paragraph 66, that quality of service measurement of broadcast signals, the payload may be used to carry information about the type of broadcast, or type of video processing used to create the broadcast video).

**Regarding claim 5**, Okamoto et al. further teach The method according to claim 1, wherein the step (c) is performed in such a way as to estimate the received data using the error information, which is returned from the receiver, and the transmitted multimedia data (paragraph 23, that estimating part to estimate the subjective quality of the deteriorated video signal according to the spatial and temporal feature values).

**Regarding claim 7**, Okamoto et al. teach the method according to claim 1, wherein the reference data is the transmitted multimedia data (paragraph 24, that estimated

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subjective quality of a deteriorated video signal produced from an undeteriorated reference video signal).

**Regarding claim 10**, Okamoto et al. teach the method according to claim 1, further comprising the step of, after the step (d): except for (e) selectively maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality (paragraph 19, that information indicative of a frame-to-frame video change between the deteriorated video signal and the reference video signal).

**Regarding claim 12**, Tian teach An apparatus for measuring transmission quality of multimedia data, comprising: a transmitter transmitting multimedia data through a channel(paragraph 66); and Okamoto teach a the receiver receiving the multimedia data from the transmitter and transmitting to the transmitter (paragraph 66, that the receiver and transmitter to even out the statistical fluctuations in bandwidth) through a return channel, information on errors (paragraph 59, that the ratio of signal strength provides a measure of the quality of service) occurring during the multimedia data transmission (paragraphs 60, 61) Tian don't teach a receiver in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission, estimating at the transmitter the multimedia data played at the receiver using the error information received from the receiver, Measuring the transmission quality of the multimedia data received by the

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receiver by comparing the estimated received data with reference data . However Okamoto teach a receiver in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission (paragraph 18, that estimate a subjective quality of the deteriorated video signal quality), estimating at the transmitter the multimedia data played at the receiver using the error information received from the receiver (paragraph 143, that estimation accuracy for the video quality assessing apparatus is equal to or below this value when the estimation accuracy is calculated as a mean square error), Measuring the transmission quality of the multimedia data received by the receiver by comparing the estimated received data with reference data (paragraph 24, that retrieving correction information corresponding to the calculated video signal feature values of the reference video signal; and correcting the estimated subjective quality according to the retrieved correction information). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian to include estimate the multimedia data as taught by Okamoto in order to controlling the transmission rate of multimedia data according to the estimated effective transmission rate thereby the multimedia quality (paragraph 16).

**Regarding claim 13,** Tian Further teach the apparatus according to claim 12, wherein the receiver transmits error information to the transmitter through the return channel only when an error occurs in the channel (paragraph 50, that measure of symbol errors in the raw message estimates of the watermark message payload).



**Regarding claim 14**, Tian Further teach the apparatus according to claim 12, wherein the receiver includes means for compensating errors by applying an error concealment technique to the received multimedia data (paragraph 23, that estimating part to estimate the subjective quality of the deteriorated video signal according to the spatial and temporal feature values).

**Regarding claim 15**, Tian Further teach the according to claim 14, wherein the receiver transmits information on the error concealment technique and the error information to the transmitter through the return channel (paragraph 66, that quality of service measurement of broadcast signals, the payload may be used to carry information about the type of broadcast, or type of video processing used to create the broadcast video).

**Regarding claim 16**, Okamoto Further teach apparatus according to claim 12, wherein the estimation unit estimates the received data using the returned error information and transmitted multimedia data (paragraph 23, that estimating part to estimate the subjective quality of the deteriorated video signal according to the spatial and temporal feature values).

**Regarding claim 18**, Okamoto Further teach the apparatus according to claim 12, wherein the reference data is the transmitted multimedia data (paragraph 24, that

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estimated subjective quality of a deteriorated video signal produced from an undeteriorated reference video signal).

**Regarding claim 20**, Okamoto et al. teach The apparatus according to claim 12, wherein the transmitter further comprises: a control unit for selectively maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality (paragraph 19, that information indicative of a frame-to-frame video change between the deteriorated video signal and the reference video signal).

**Regarding Claim 23**, Okamoto et al teach that a method of measuring transmission quality of multimedia data (paragraph 79), comprising the steps of: (a) transmitting multimedia data through a channel by a transmitter (paragraph 125); (b) transmitting a set of parameters extracted from a video segment which are affected by errors occurring during multimedia data transmission to the transmitter through a return channel by a receiver receiving the multimedia data from the transmitter (paragraphs 125, 126) ; (c) measuring the transmission quality of the received multimedia data played at the receiver by using the set of parameters and reference data by the transmitter (paragraph 133, that the distributions of pixel values of the reference and deteriorated video frames).

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4. Claims 6, 8, 9, 11, 17, 19, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tian et al. (PGPUB-No: 2002/0076084) and Okamoto et al. (PGPUB-No: 2006/0276983) in view of Saunders et al. (Patent No: 6351733).

**Regarding claims 6, 8,** Tian and Okamoto et al. teach The method according to claim 5, wherein: at the step (a), except for the transmitter encodes the multimedia data and transmits the encoded multimedia data through the channel; and at the step (c), the transmitted multimedia data is obtained by decoding the encoded multimedia data . However Saunders et al. teach transmitter encodes the multimedia data and transmits the encoded multimedia data through the channel; and at the step (c), the transmitted multimedia data is obtained by decoding the encoded multimedia data (column 14, lines 10-25, figure 5) . Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 9,** Tian and Okamoto et al. teach the method according to claim 1, wherein the step (d) is except for performed in such a way as to estimate the transmission quality by using any one of a full-reference method, a reduced-reference method, and a no reference method. However Saunders teach estimate the transmission quality by using any one of a full-reference method, a reduced-reference method, and a no reference method (paragraphs 47, 50, see figure 4). Therefore, it

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would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include full-reference method, a reduced-reference method, and a no reference as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 11**, Tian and Okamoto et al. teach the method according to claim 10, wherein the step (e) is performed in such a way as to perform at least one of operations of terminating video transmission, increasing the channel bandwidth, except for employing an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state. However Saunders et al. (Patent No: 6351733) teach an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state (column 2, lines 24-30, column 18, lines 28-46, column 19, lines 11-13, 22, 26). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include CODEC taught by Saunders in order to transmit two types of information: radio and metadata, thereby improve more customer services.

**Regarding claim 17**, Tian and Okamoto teach the apparatus according to claim 16, wherein the transmitter further comprises: except for a decoding unit decoding encoded multimedia data and outputting the transmitted multimedia data. However Saunders et

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al. (Patent No: 6351733) teach an encoding unit encoding source multimedia data to encoded multimedia data, (column 14, lines 10-25, figure 5). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 19**, Tian and Okamoto teach the apparatus according to claim 12, except for wherein the evaluation unit estimates the transmission quality using any one of a full-reference method, a reduced-reference method, and a no reference method. However Saunders teach estimate the transmission quality by using any one of a full-reference method, a reduced-reference method, and a no reference method (paragraphs 47, 50, see figure 4). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include full-reference method, a reduced-reference method, and a no reference as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 22**, Tian and Okamoto teach the apparatus according to claim 20, wherein the encoding unit performs at least one of operations of applying an error correction technique and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality. However Saunders et al.

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(Patent No: 6351733) teach an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state (column 2, lines 24-30, column 18, lines 28-46, column 19, lines 11-13, 22, 26). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include CODEC as taught by Saunders in order to transmit two types of information: radio and metadata, thereby improve more customer services.

**Regarding Claim 24**, Tian and Okamoto et al. teach an apparatus for measuring transmission quality of multimedia data, comprising: a transmitter transmitting multimedia data through a channel (paragraph 16, see figure 66); and a receiver receiving the multimedia data, detecting errors (paragraph 50), which occurs in the channel, from the multimedia data (paragraph 9), and extracting a set of parameters from a video segment which are affected by the errors the transmitter through a return channel, wherein the transmitter (paragraph 31, 61, that the watermark signal can be tailored to detect video quality degradation for quality of service measurements) comprises, except for an encoding unit encoding source multimedia data to encoded multimedia data, and an evaluation unit evaluating the transmission quality of the received data by using the set of parameters and reference data. However Saunders et al. (Patent No: 6351733) teach an encoding unit encoding source multimedia data to encoded multimedia data, and an evaluation unit evaluating the transmission quality of the received multimedia data played at the receiver by using the set of parameters and

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reference data(column 14, lines 10-25, figure 5). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Tian and Okamoto to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

5. Claim 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tian et al. (PGPUB-No: 2002/0076084) and Okamoto et al. (PGPUB-No: 2006/0276983) in view of Caviedes et al. (PGPUB-No: 2002/0002709).

**Regarding claim 21**, Tian and Okamoto teach The apparatus according to claim 20, wherein the control unit performs except for at least one of operations of terminating video transmission and increasing the channel bandwidth, depending on evaluation results of transmission quality. However Caviedes et al. (PGUB No: 2004/0012645) teach operations of terminating video transmission and increasing the channel bandwidth, depending on evaluation results of transmission quality (paragraphs 7, 10, see figure 1, 2). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Kawai and Cooper to include transmission quality as taught by Caviedes et al in order to provide clipping due to finite precision arithmetic, thereby improve high quality services.

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### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Any response to this Office Action should be **faxed** to (571) 273-8300 or **mailed to**:  
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### **Hand-delivered responses should be brought to**

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Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adel Y. Youssef whose telephone number is 571-270-3525. The examiner can normally be reached on Monday to Thursday 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDERSON MATTHEW can be reached on (571)272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ADEL YOUSSEF/

Examiner, Art Unit 2618

/Matthew D. Anderson/  
Supervisory Patent Examiner, Art Unit 2618